| **Site: Sugarcane** | **Overall Confidence Rating: High** |
|---|---|

Background: A total of 915,500 acres are associated with sugarcane production in the U.S. Of this acreage, 862500 acres are directly used for sugar production with the remainder being used for seed production. Sugarcane is produced in Florida, Louisiana, Hawaii, and Texas. However, 90% of all production is from Florida and Louisiana. Organophosphate pesticides (OP) represent 60.7% of all pesticide usage on this crop with an average of 1.15 applications per year.

| Organophosphate | % Treated | | # Applications | | Rate (lb AI/A) | | PHI (days) | |
|---|---|---|---|---|---|---|---|---|
| Pesticides | Max[8] | Avg[8] | Max[6] | Avg[8] | Max[6] | Avg[8] | Min[6] | Avg[2] |
| azinphos-methyl | 52.8 | 24.9 | NS | 1.0 | 0.75 | 0.9 | 30 | --- |
| chlorpyrifos | 0 | < 1 | --- | 1.0 | --- | 0.5 | --- | --- |
| diazinon | --- | --- | NS | 1.3 | 5.88 | --- | 1 | --- |
| ethoprop | 12 | 6 | NS | 1.0 | 6.0 | 3.5 | --- | --- |
| phorate | 10 | 9.5 | NS | 1.0 | 4.0 | --- | --- | --- |

Confidence Rating: H= high confidence = data from several confirming sources; confirmed by personal experience
M = medium confidence = data from only a few sources; may be some conflicting or unconfirmed info.
L = low confidence = data from only one unconfirmed source

| **Organophosphate Target Pests for Sugarcane in the U.S.** (Primary pests controlled by the OP's)[2, 3, 4, 5] | |
|---|---|
| Major | Wireworm, Borer (Sugarcane and Lesser Cornstalk) |
| Moderate | Nematodes, Aphid (Yellow Sugarcane) |
| Minor | White Grub |

Major = 20+% of all OP usage on pest; Moderate = 5-20% of all OP usage on pest; Minor =<5% of all OP usage on pest

Sources:

1. Proprietary EPA market share information 1994-1996.
2. QUA+ - Louisiana and Florida. 1997.
3. 1998 Florida Insect Management Guide. 1998. Cooperative Extension Service. University of Florida. SP-51.
4. Pest Management of Sugarcane Insects. 1996. Louisiana Cooperative Extension Service. Louisiana State University.
5. 1998 Insect Control Guide. 1998. Louisiana Cooperative Extension Service. Louisiana State University. Pub. 1838.
6. Label Use Information System (LUIS) Version 5.0, EPA.
7. The All-Crop, Quick Reference Insect Control Guide (1997), Meister Publishing Company
8. EPA Internal QUA Data.

Date: 01/29/99

## Site: Sugarcane
## Region: National (FL, LA, TX and HI)

| Pest[2, 3, 4, 5] | Organophosphate[1, 2, 3, 4, 5, 6, 7] | Efficacy | Mkt[1] | Class | Alt. Pesticide List[1, 2, 3, 4, 5, 7] | Efficacy | Mkt[1] | Constraints of Alternatives[2, 3, 4, 5] |
|---|---|---|---|---|---|---|---|---|
| Timing: Pre-Emergence | | | | | | | | |
| Wireworm (Major) | diazinon | --- | --- | C | carbofuran | --- | Lo | Carbofuran readily moves in the soil and may result in ground water contamination. |
| | ethoprop | --- | High | CH | dichloropropene | --- | --- | |
| | phorate | --- | High | | | | | |
| Nematode (Moderate) | ethoprop | --- | High | C | carbofuran | --- | Med | Carbofuran readily moves in the soil and may result in groundwater contamination. |
| | phorate | --- | Lo | CH | aldicarb | --- | --- | |
| White Grub (Minor) | phorate | --- | High | C | carbofuran | --- | Lo | Carbofuran readily moves in the soil and may result in groundwater contamination. |

**ADDITIONAL INFORMATION:**[2]

In Louisiana, Wireworm and White grub can be controlled by maintaining grass-free and weed-free fields to prevent establishment of pest populations. However, Florida projects a yield loss of 10% in the first harvest when plant cane is not treated to control Wireworm. Because sugarcane in Florida is a three-year perennial crop, only one third of the acreage is planted and treated with a soil insecticide each year.

**SOURCES:**

1. Proprietary EPA market share information 1994-1996.
2. QUA+ - Louisiana and Florida. 1997.
3. 1998 Florida Insect Management Guide. 1998. Cooperative Extension Service. University of Florida. SP-51.
4. Pest Management of Sugarcane Insects. 1996. Louisiana Cooperative Extension Service. Louisiana State University.
5. 1998 Insect Control Guide. 1998. Louisiana Cooperative Extension Service. Louisiana State University. Pub. 1838.
6. Label Use Information System (LUIS) Version 5.0, EPA.
7. The All-Crop, Quick Reference Insect Control Guide (1997), Meister Publishing Company
8. EPA Internal QUA Data.

Date: 10/7/98

## Site: Sugarcane
## Region: National (FL, LA, TX and HI)

| Pest[2, 3, 4] | Organophosphate[1, 2, 3, 4, 5, 6] | Efficacy | Mkt[1] | Class | Alt. Pesticide List[1, 2, 3, 4, 5] | Efficacy | Mkt[1] | Constraints of Alternatives[2] |
|---|---|---|---|---|---|---|---|---|
| Timing: Post-Emergence | | | | | | | | |
| Borer (Sugarcane and Lesser cornstalk) (Major) | azinphos-methyl | --- | High | C | carbofuran | --- | Lo | Application of pyrethroids can cause secondary outbreaks of yellow sugarcane aphids because of disruption of natural enemies of this pest. |
| | | | | P | cyfluthrin | --- | High | |
| | | | | P | esfenvalerate | --- | Med | |
| | | | | O | petroleum oil | --- | Lo | |
| Aphid (Yellow sugarcane) (Moderate) | azinphos-methyl | | Lo | P | esfenvalerate | | Lo | Infestations of the Yellow sugarcane aphid usually occur at low levels and are kept in below economic injury level by parasites and predators, especially ladybird beetles. |
| | diazinon | | High | | | | | |

**ADDITIONAL INFORMATION:**[2]

The sugarcane borer is the most important pest in all mainland sugarcane production. Prior to the use of organophospate insecticides, Louisiana lost an average of 13% of their sugarcane yield to the sugarcane borer. While sugarcane borer populations can be partially suppressed through the use of resistant cultivars and natural predators, insecticidal control is still recommended when 5% of stalks are infested with small larvae. Tebufenozide and Lambda-Cyhalothrin have recently or are currently being used as Section 18 insecticides to control post-emergence pests in sugarcane.

## SOURCES:

1. Proprietary EPA market share information 1994-1996.
2. QUA+ - Louisiana and Florida. 1997.
3. 1998 Florida Insect Management Guide. 1998. Cooperative Extension Service. University of Florida. SP-51.
4. Pest Management of Sugarcane Insects. 1996. Louisiana Cooperative Extension Service. Louisiana State University.
5. 1998 Insect Control Guide. 1998. Louisiana Cooperative Extension Service. Louisiana State University. Pub. 1838.
6. Label Use Information System (LUIS) Version 5.0, EPA.
7. The All-Crop, Quick Reference Insect Control Guide (1997), Meister Publishing Company
8. EPA Internal QUA Data.

Date: 10/7/98

Pest Importance: Major = 20+% of all OP usage on pest; Moderate = 5-20% of all OP usage on pest; Minor = <5% of all OP usage on pest
Efficacy Rating: Excellent = ☺ Good = ❍ Fair = ●
Market Share: High = use of OP represents 20+% of all insecticide usage on pest; Med = 5-20% of all usage on pest; Lo = <5% of all usage on pest
Insecticides: C = Carbamates; P = Pyrethroids; CH = Chlorinated Hydrocarbons; IGR = Insect Growth Regulators; B = Biological; O = Other pesticides